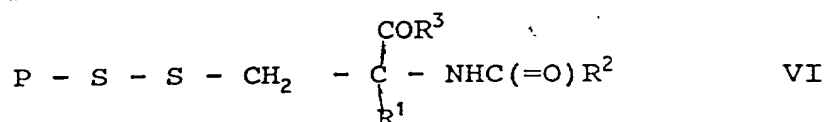


# WHAT IS CLAIMED IS:

1. A compound of general formula VI



in which P is selected from the group consisting of peptides, proteins and oligonucleotides; R<sup>1</sup> is hydrogen, lower alkyl or aryl; R<sup>2</sup> is a lipid-containing moiety comprising a lipid group; and R<sup>3</sup> is -OH, a lipid-containing moiety comprising a lipid group or an amino acid chain comprising one or 2 amino acids and terminating in -CO<sub>2</sub>H or -COR<sup>2</sup>.

2. A compound according to claim 1, wherein R<sup>1</sup> is hydrogen, R<sup>2</sup> is a lipid group and R<sup>3</sup> is -OH.

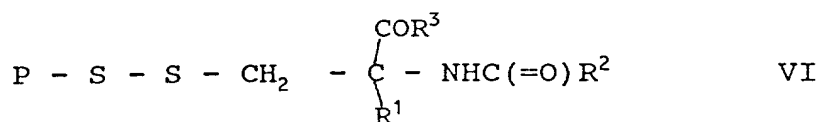
3. A compound according to claim 1, wherein R<sup>1</sup> is hydrogen, R<sup>2</sup> is -CH<sub>2</sub>CH<sub>2</sub>CH(NH<sub>2</sub>)CO<sub>2</sub>H or -CH<sub>2</sub>CH<sub>2</sub>CH(NHCO-lipid)CO-lipid and R<sup>3</sup> is -NHCH<sub>2</sub>CO<sub>2</sub>H or -NHCH<sub>2</sub>CO-lipid in which at least one of R<sup>2</sup> and R<sup>3</sup> comprises a lipid group.

4. A compound according to claim 1, wherein said lipid group is a hydrophobic substituent comprising about 4 to about 26 carbon atoms.

5. A compound according to claim 4, wherein said lipid group is a hydrophobic substituent comprising about 5 to about 19 carbon atoms.

6. A method for increasing absorption of a sulfhydryl-group containing compound selected from the group consisting of peptides, proteins and oligonucleotides into mammalian cells, said method comprising:

forming from the sulfhydryl-containing compound a compound of general formula VI



in which P is a moiety derived from the sulfhydryl-group containing compound selected from the group consisting of peptides, proteins and oligonucleotides; R<sup>1</sup> is hydrogen, lower alkyl or aryl; R<sup>2</sup> is a lipid-containing moiety; and R<sup>3</sup> is -OH, a lipid-containing moiety or an amino acid chain comprising one or 2

amino acids and terminating in  $-\text{CO}_2\text{H}$  or  $-\text{COR}^2$ ; and

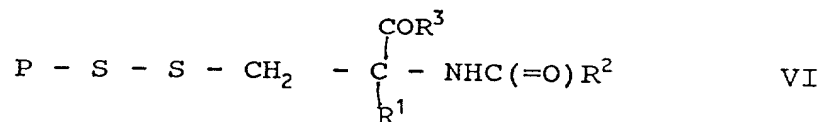
administering the compound of general formula VI to the cells.

7. A method according to claim 6, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is a lipid group and  $\text{R}^3$  is  $-\text{OH}$ .

8. A method according to claim 6, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$  or  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NHCO-lipid})\text{CO-lipid}$  and  $\text{R}^3$  is  $-\text{NHCH}_2\text{CO}_2\text{H}$  or  $-\text{NHCH}_2\text{CO-lipid}$  in which at least one of  $\text{R}^2$  and  $\text{R}^3$  comprises a lipid group.

9. A method for prolonging blood and tissue retention of a sulfhydryl-group containing compound selected from the group consisting of peptides, proteins and oligonucleotides into mammalian cells, said method comprising:

forming from the sulfhydryl-containing compound a compound of general formula VI



in which P is selected from the group consisting of peptides, proteins and oligonucleotides;  $\text{R}^1$  is hydrogen, lower alkyl or aryl;  $\text{R}^2$  is a lipid-containing moiety; and  $\text{R}^3$  is  $-\text{OH}$ , a lipid-containing moiety or an amino acid chain comprising one or 2 amino acids and terminating in  $-\text{CO}_2\text{H}$  or  $-\text{COR}^2$ ; and administering the compound of general formula VI to the cells.

10. A method according to claim 9, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is a lipid group and  $\text{R}^3$  is  $-\text{OH}$ .

11. A method according to claim 9, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$  or  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NHCO-lipid})\text{CO-lipid}$  and  $\text{R}^3$  is  $-\text{NHCH}_2\text{CO}_2\text{H}$  or  $-\text{NHCH}_2\text{CO-lipid}$  in which at least one of  $\text{R}^2$  and  $\text{R}^3$  comprises a lipid group.

12. A compound of general formula V



in which A is an aromatic activating residue;  $\text{R}^1$  is hydrogen, lower alkyl or aryl;  $\text{R}^2$  is a lipid-containing moiety comprising a lipid group; and  $\text{R}^3$  is  $-\text{OH}$ , a lipid-containing moiety comprising a lipid group or an amino acid chain comprising

one or 2 amino acids and terminating in  $-\text{CO}_2\text{H}$  or  $-\text{COR}^2$ .

13. A compound according to claim 12, wherein A is 2-pyridyl or 4-nitrophenyl.

14. A compound according to claim 12, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is a lipid group and  $\text{R}^3$  is  $-\text{OH}$ .

15. A compound according to claim 12, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$  or  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NHCO-lipid})\text{CO-lipid}$  and  $\text{R}^3$  is  $-\text{NHCH}_2\text{CO}_2\text{H}$  or  $-\text{NHCH}_2\text{CO-lipid}$  in which at least one of  $\text{R}^2$  and  $\text{R}^3$  comprises a lipid group.

16. A method for forming a compound of general formula VI, comprising: reacting a compound of general formula PSH, in which P is selected from the group consisting of peptides, proteins and oligonucleotides, with a compound of general formula V



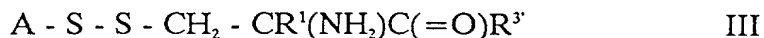
in which A is an aromatic activating residue;  $\text{R}^1$  is hydrogen, lower alkyl or aryl;  $\text{R}^2$  is a lipid-containing moiety comprising a lipid group; and  $\text{R}^3$  is  $-\text{OH}$ , a lipid-containing moiety comprising a lipid group or an amino acid chain comprising one or 2 amino acids and terminating in  $-\text{CO}_2\text{H}$  or  $-\text{COR}^2$ .

17. A method according to claim 16, wherein A is 2-pyridyl or 4-nitrophenyl.

18. A method according to claim 16, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is a lipid group and  $\text{R}^3$  is  $-\text{OH}$ .

19. A method according to claim 16, wherein  $\text{R}^1$  is hydrogen,  $\text{R}^2$  is  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{CO}_2\text{H}$  or  $-\text{CH}_2\text{CH}_2\text{CH}(\text{NHCO-lipid})\text{CO-lipid}$  and  $\text{R}^3$  is  $-\text{NHCH}_2\text{CO}_2\text{H}$  or  $-\text{NHCH}_2\text{CO-lipid}$  in which at least one of  $\text{R}^2$  and  $\text{R}^3$  comprises a lipid group.

20. A compound of general formula III



in which  $\text{R}^3$  is  $-\text{OH}$  or an amino acid chain comprising one or two amino acids and terminating in  $-\text{CO}_2\text{H}$ ; A is an aromatic activating residue; and  $\text{R}^1$  is hydrogen, lower alkyl or aryl.

21. A compound according to claim 20, wherein R<sup>1</sup> is hydrogen and R<sup>3</sup> is -OH.

22. A compound according to claim 20, wherein R<sup>1</sup> is hydrogen and R<sup>3</sup> is -NHCH<sub>2</sub>CO<sub>2</sub>H.